

Notice of Allowability	Application No.	Applicant(s)	
	09/198,849	KANAYAMA, YOSHINOBU	
	Examiner	Art Unit	
	M. Alexandra Elve	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/4/04.
2. ☒ The allowed claim(s) is/are 10-19,21,22 and 25-52.
3. ☒ The drawings filed on 24 November 1998 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>2/25/04</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

The application has been amended as follows:

In claim 52, line 13, after "are in the", insert – liquid.--.

Claims 10-19, 21-22 & 25-52 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art does not teach that the center of the device electrode is not aligned with the center of the substrate electrode while the device is partially submerged in a liquid.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Examiner 5 Amendment

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positioning said plurality of respective device electrodes so as to contact said opposite surface of said respective solder bumps such that the centers of said plurality of respective device electrodes are not aligned with the respective centers of said plurality of substrate electrodes while said device is at least partially submerged in said liquid;

aligning the centers of said plurality of respective device electrodes with the respective centers of said plurality of substrate electrodes by surface tension of said respective solder bumps when said respective solder bumps are melted and while said device is at least partially submerged in said liquid and at least partially supported by a buoyant force thereby joining said plurality of substrate electrodes and said plurality of respective device electrodes to each other; and

solidifying said respective solder bumps.

52. (Previously Presented) A method of joining a device to a substrate, the substrate having a plurality of solder pieces electrically coupled to a plurality of substrate electrodes, the method comprising:

placing the substrate in a liquid;

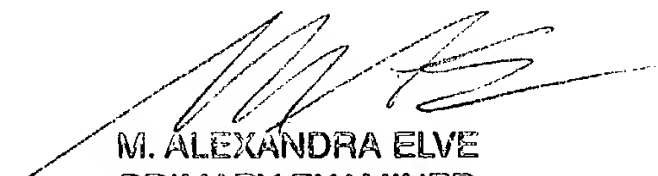
melting the plurality of solder pieces to form a plurality of solder bumps while the substrate is in the liquid;

placing a device having a plurality of respective device electrodes on the plurality of solder bumps while the device is in the liquid such that the plurality of respective device electrodes are out of alignment with a respective substrate electrode of the plurality of substrate electrodes; and

melting the plurality of solder bumps so as to cause the plurality of respective device electrodes to align with the plurality of respective substrate electrodes while the device and the substrate are in the liquid.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 25, 2004.



M. ALEXANDRA ELVE
PRIMARY EXAMINER